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LOYOLA UNIVERSITY CHICAGO

THE ROLE OF SELF-ESTEEM, PERCEIVED SOCIAL SUPPORT, AND COPING
STRATEGY IN THE ESCALATION OF DEPRESSIVE SYMPTOMATOLOGY
DURING THE FIRST YEAR OF COLLEGE

A THESIS SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
MASTER OF ARTS

PROGRAM IN CLINICAL PSYCHOLOGY

BY
CATHERINE LEE

CHICAGO, IL

MAY 2013

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ABSTRACT

The first year of college is a significant life transition that can be a particularly stressful experience, which may lead to the development or exacerbation of depressive symptoms. Due to the considerable negative outcomes that are associated with depressive symptoms across the lifespan, it is important to understand the mechanisms and pathways through which such symptoms arise. This prospective study examines how self-esteem, perceived social support, and coping strategies are associated with the development of depressive symptoms during the transition to college. The findings of this longitudinal study indicate that self-esteem may affect both perceived social support and disengagement coping to subsequently predict depressive symptomatology. Furthermore, the association between self-esteem and perceived social support seems to be bidirectional, in that level of self-esteem may predict perceived social support, and vice versa. Disengagement coping also seems to be an underlying indicator of developing psychopathology, for individuals with high self-esteem as well as those with low self-esteem.

CHAPTER ONE

INTRODUCTION

The number of high school students entering college is on the rise (Hamilton & Hamilton, 2006). Being such a vast life modification, the transition can be a stressful experience that may lead to the development of depressive symptoms in this population of emerging adults (Rutter & Sroufe, 2000), an already at-risk age group (Arnett, 2005). The first year of college can be particularly stressful; students typically face a host of new stressors, as the transition requires adaptation to new environments, facing academic challenges, and managing social demands (Brougham, Zail, Mendoza & Miller, 2009; Dyson & Renk, 2006). As a result, this population is especially vulnerable to developing internalizing symptoms such as depressive affect (Dixon & Kurpius, 2008; Dyson & Renk, 2006; MacGeorge, Samter, & Gillihan, 2005; Rutter & Sroufe, 2000). This is illustrated by the findings of the American College Health Association, reporting that in the year 2011, 86.3% of college students reported feeling “overwhelmed” within the past 12 months, and 31.1% reported being so depressed that it was difficult to function.

Furthermore, depressive symptomatology is associated with negative outcomes in various domains, including academics or employment, interpersonal relationships, and overall quality of life (Rapaport, Clary, Fayyad, & Endicott, 2005). These negative effects have also been found to persist into adulthood, with decreased job satisfaction and quality of performance at work, and increased likelihood of burnout (Kessler et al., 2006;

Salmela-Aro, Aunola, & Nurmi, 2008) and divorce (Kessler, Walters, & Forthofer, 1998).

Because of the detrimental short- and long-term effects of depressive affect and its increasing prominence in college students, it is important to consider the interaction of risk and protective factors that lead some, but not others, down a path to depression. Low self-esteem has often been demonstrated to be a strong predictor of depressive symptoms (Dixon & Kurpius, 2008; Orth, Robins & Roberts, 2008), which illustrates that individuals with low self-esteem experiencing the stress of the transition to college may be especially vulnerable to developing depressive symptoms. However, there are currently gaps in the literature regarding the pathways through which self-esteem affects depression, and what underlying mechanisms might account for the relation between the two (Orth et al., 2008).

With respect to such mechanisms, research has shown that self-esteem may affect depressive symptoms via perceived social support (Brissette, Scheier, & Carver, 2002; Friedlander, Reid, Shupak, & Cribbie, 2007). There are several interpersonal theories positing that self-esteem predicts perceived social support. Swann's *self-verification theory* proposes that individuals with low self-esteem seek feedback consistent with their own subjective self-views, which is often negative (Giesler, Josephs, & Swann, 1996; Swann, 1997; Swann, Wenzlaff, Tafarodi, 1992), leading them to *perceive* less support. They have also been found to be more sensitive to rejection, with a tendency to perceive their relationship partner's behavior more negatively, thereby undermining attachment and satisfaction in close relationships (Murray, Holmes & Griffin, 2000; Murray, Rose,

Bellavia, Holmes & Kusche, 2002). Additionally, evidence suggests that some individuals with low self-esteem excessively seek reassurance about their personal worth from friends, increasing the risk of being rejected by their social support network (Joiner, 2000; Joiner & Metalsky, 2001; Joiner, Metalsky, Katz, & Beach, 1999). Low self-esteem also motivates social avoidance, thereby impeding social support (Ottenbreit & Dobson, 2004).

However, perceived social support on its own has often been found to buffer against depressive symptoms when individuals are faced with stress (Cohen & Hoberman, 1983; Dean & Ensel, 1983; Gottlieb, 1985; Zimet, Dahlem, Zimet, & Farley, 1988). Dean and Ensel (1983) went as far as to say that social support is the single most important factor in determining the levels of depression experienced by both males and females who range in age from 17 to 24. Thus, it may be the case that perceived social support might actually buffer against the negative effects of low self-esteem, which may in turn affect their psychological well-being.

In response to the multitude of stressors that first-year students face in the transition to college, an important concept to consider is an individual's resources to adapt to stress. Coping – responses to stressful events and the resulting distress (Carver & Connor-Smith, 2010) – is a popular and critical construct in contemporary psychology, and can be conceptualized in various ways. A particularly important conceptualization is that of engagement or approach coping, where the intent is dealing with the stressor(s) or related emotions, versus disengagement or avoidance coping, which is aimed at escaping the stressor(s) or related emotions (Moos & Schaefer, 1993; Roth & Cohen, 1986;

Skinner, Edge, Altman, & Sherwood, 2003). Using avoidance coping strategies in response to stress is almost always associated with negative psychological outcomes, and this is especially true during the transition to college (Beasley, Thompson, & Davidson, 2003; Blalock & Joiner, 2000; Dyson & Renk, 2006).

Previous literature illustrates that self-esteem impacts the coping strategy an individual uses when confronted with stress (Chapman & Mullis, 1999; Kammeyer-Mueller, Judge, & Scott, 2009). Individuals who believe that something can be done to resolve the problem tend to use a more active or “engagement” coping strategy than people who appraise the situation as beyond their control (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Thus, individuals with low self-esteem likely use more avoidant or “disengagement” coping strategies as a result of the lack of self-confidence to handle the situation in a more direct manner (Chan, 1977; Holahan & Moos, 1987). It then follows that individuals lower in reported self-esteem will endorse more avoidant coping strategies than individuals with higher reported self-esteem, which is consistent with the literature linking levels of self-esteem to depressive symptoms.

The current study aims to address gaps in the existing literature by testing competing moderation and meditation models of how self-esteem works to affect the development, maintenance, or exacerbation of depressive symptoms in the transition to college. It will attempt to clarify whether self-esteem is associated with depressive symptoms via perceived social support and coping strategies (as mediators), or if, instead, these two variables moderate (or buffer) the effect of low self-esteem on depressive symptoms. Figure 1 illustrates the overarching conceptual model, which is then broken

down into the relevant individual statistical models that will be explained in the text and tested in the current study. This study will also consider an alternative model to elucidate the relative roles of self-esteem and perceived social support in the development of depressive symptoms in first-year college students. Specifically, past work suggests that there is a direct effect of perceived social support on depressive symptoms, and that self-esteem may mediate this relationship (Symister & Friend, 2003; see Figure 6).

While most research examining these critical psychosocial variables are cross-sectional, this study will examine the effects of self-esteem longitudinally, following the same population of students through their first year of college. This longitudinal design makes it possible to investigate prospectively mechanisms that underlie links between levels of self-esteem and depressive symptoms.

CHAPTER TWO

REVIEW OF THE RELEVANT LITERATURE

The Impact of the Transition to College on Depressive Symptoms

An increasing number of individuals are choosing to attend college, with approximately 68% of students continuing on directly after high school graduation in 2010 (Hamilton & Hamilton, 2006; United States Department of Labor, Bureau of Labor Statistics, 2011). Sixty percent of first-year college students fall within the age range of 18-24 (Hussar & Bailey, 2010), which has been labeled *emerging adulthood* (Arnett, 2000). Because this developmental period is a time of experimentation, exploration, and identity development, it may also be a time of instability and uncertainty for many individuals. Thus, it is not surprising that emerging adults have been found to be at an increased risk for the development of depressive symptoms (Arnett, 2005; Nelson & Barry, 2005). One in four emerging adults will experience at least one depressive episode, indicating that the incidence of depression is highest in this age group (Kuwabara, Van Voorhees, Gollan, & Alexander, 2007). Given this information, the relationship between the transition to college and depressive symptoms is a critical area for further investigation.

The transition to college is often a period of considerable stress for emerging adults, as the process involves new experiences, obstacles, and demands (Arnett, 2000; Gall, Evans, & Bellerose, 2000; Schulenberg, Sameroff & Cicchetti, 2004). Thus, the

first year of college can be particularly difficult; students must often adapt to new environments, face academic challenges and an increased workload, and establish new relationships in an unfamiliar social terrain (Brougham et al., 2009; Dyson & Renk, 2006; Towbes & Cohen, 1996). The college experience requires emerging adults to face many novel demands and challenges, such as managing financial strain (Ross, Niebling, & Heckert, 1999), developing new interpersonal relationships (Edwards, Hershberger, Russell, & Markert, 2001), and learning effective time management in response to increased responsibilities (Nonis, Hudson, Logan, & Ford, 1998).

As a result, this population is especially vulnerable to internalizing symptoms such as depressive affect (Dixon & Kurpius, 2008; Dyson & Renk, 2006; MacGeorge et al., 2005; Rutter & Sroufe, 2000). Indeed, studies have found that depression is a growing problem across college campuses in the United States (American College Health Association, 2003; Benton, Robertson, Tseng, Newton, & Benton, 2003; Furr, Westefeld, McConnell, & Jenkins, 2001). This is illustrated by the findings of the American College Health Association, reporting that in the year 2011, 86.3% of college students reported feeling “overwhelmed” at least once within the past 12 months, and 31.1% reported being so depressed that it was difficult to function. More than 50% of college students report experiencing significant depression since the start of college, making depressive symptoms some of the most common Axis I symptoms experienced on college campuses (Furr et al., 2001). Moreover, first-year college students report higher levels of distress in comparison to non-student samples (Adlaf, Gliksman, Demers & Newton-Taylor, 2001),

and even higher levels of stress and depression when compared to more advanced college students (Bayram & Bilgel, 2008; Edwards et al., 2001; Fisher & Hood, 1987).

Suicide is an outcome strongly associated with depressive symptoms, and is the second leading cause of death in college students (Wilcox et al., 2010). Even considering less extreme outcomes, depressive symptomatology is associated with negative outcomes in various domains, including academics or employment, interpersonal relationships, and overall quality of life (Rapaport et al., 2005). Research in the college population supports these findings; depressive affect has been linked to poor academic performance, increased rates of school dropout (DeBerard, Spielmans, & Julka, 2004; DeRoma, Leach, & Leverett, 2009; Hartley, 2010; Hysenbegasi, Hass, & Rowland, 2005), difficulties with family and peer relationships (Rapaport et al., 2005), and increases in suicidal ideation (Wilcox et al., 2010). The negative effects associated with depressive symptomatology have also been found to persist into the adult population, with decreased job satisfaction and quality of performance at work, and increased rates of burnout (Kessler et al., 2006; Salmela-Aro et al., 2008). Interpersonally, depressive symptoms have been linked to decreased marital satisfaction and increased rates of divorce (Kessler et al., 1998). Moreover, research has shown that early development of depressive symptoms may increase the risk of depressive symptomatology in adulthood (Rao et al., 1995). Considering the increasing numbers of emerging adults transitioning into college and the increasing rates of depressive symptoms in this population (Benton et al., 2003, Furr et al., 2001), it is necessary to better understand the pathways through which self-esteem works to affect the development, maintenance, or exacerbation of depressive symptoms

in the transition to college. The clarification of these relationships will help to determine potential targets for more efficacious mental health programs and interventions in this population.

Self-Esteem and Depression

Self-esteem is commonly characterized as a positive or negative overall evaluation of the self (Rosenberg, 1965). It should be distinguished from self-concept in that self-esteem is a facet of self-concept. In contemporary theories, self-concept is considered to be one's overall cognitive perception of the self, which incorporates the organization and processing of all self-relevant information (Campbell, 1990; Cantor & Kihlstrom, 1983; Markus, 1977). Self-esteem, then, is the evaluative component of self-concept, applying ratings of worth to the self. Yet others make the distinction that self-esteem is the association of the self with valence (positive or negative) characteristics, while self-concept is the association of the self with non-valence characteristics (Greenwald et al., 2002). In recent literature, it has become evident that self-esteem is a complex, multifaceted construct. Many authors have emphasized the importance of domain-specific, or state, self-esteem. Nevertheless, the more traditional *global self-esteem*, as it has been termed, remains central in the literature. Research has shown that global self-esteem may be more relevant to psychological well-being, while state self-esteem may be more relevant to behavior (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). For example, it is higher *global* self-esteem that has been strongly associated with a variety of personality and developmental outcomes, including the adjustment to college, and lower *global* self-esteem that has been linked to poorer

psychosocial outcomes (Friedlander et al., 2007; Hickman, Bartholomae, & McKenry, 2000; Watson, Suls, & Haig, 2002).

As originally postulated by Rosenberg (1965), high self-esteem is often understood to be the feeling that one is “good enough.” Individuals with high self-esteem respect themselves and believe that they are people of worth, but they do not necessarily consider themselves superior to others. Similarly, the traditional description of low self-esteem involves a low overall evaluation of the self, persistent feelings of inferiority, a sense of worthlessness, and often, feelings of loneliness and insecurity (Mruk, 1999). An important premise of the role of self-esteem is that it helps to buffer individuals from stressors encountered in daily life (Mann, Hosman, Schaalma, & de Vries, 2004; Pruessner, Hellhammer, & Kirschbaum, 1999). This is evidenced in the emerging adult population by findings that high self-esteem predicts better adjustment to college life (Bettencourt, Charlton, Eubanks, Kernahan, & Fuller, 1999). In this sense, those with higher levels of self-esteem are able to better-tolerate challenges and demands, while those with low self-esteem can be thought of as having a vulnerability in the face of developmental challenges (Baumeister, Campbell, Kreuger, & Vohs, 2003; Kernis, 2003; Rosenberg, 1965).

Low self-esteem is frequently linked to various negative psychosocial outcomes, including anxiety (Heatherton & Ambady, 1993), substance abuse (Kitano, 1989; Leary, Schreindorfer, & Haupt, 1995), delinquency (Kaplan, Martin, & Johnson, 1986), and aggression (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Leary et al., 1995). The link between low self-esteem and negative psychological outcomes is so

central, that Skager and Kerst (1989) went so far as to propose that low self-esteem is the central cause of psychopathology, supported by the finding that psychotherapists typically observe low self-esteem in those who seek psychological help (Mruk, 1999).

Many studies have found strong associations between low self-esteem and depression, which is one of the most frequently cited connections in this literature (Joiner, Katz, & Lew, 1999; Kernis, Grannemann, & Mathis, 1991; Lewinsohn, Hoberman, & Rosenbaum, 1988; Roberts & Monroe, 1992). A popular theory that has been proposed to explain this relationship is the *vulnerability model*, which hypothesizes that low self-esteem serves as a risk factor for depression, especially in the face of major life stressors (Beck, 1967; Metalsky, Joiner, Hardin, & Abramson, 1993; Orth, et al., 2008; Whisman & Kwon, 1993). For example, according to Beck's (1967) cognitive theory of depression, negative beliefs about the self play a critical causal role in the etiology of depressive symptoms. However, as with many construct associations, the effects of self-esteem may be mediated or moderated by other variables. In order for researchers to obtain a more concrete grasp of the relation between self-esteem and depressive symptomatology and to establish efficacious intervention programs targeting these pathways, it is important to better understand theoretically-relevant factors that may mediate and/or moderate this link.

Perceived Social Support as Moderator vs. Mediator

Social support has often been cited to be an important protective factor against various negative outcomes, particularly for undergraduate students transitioning into college (Friedlander et al., 2007; Reifman & Dunkel-Schetter, 1990; Tao, Dong, Pratt,

Hunsberger, & Pancer, 2000; Zimet et al., 1988). Lin (1986) defined social support as “perceived or actual instrumental and/or expressive provisions supplied by the community, social networks, and confiding partners.” From this definition, it is evident that social support is a complex construct that can be partitioned and measured in a variety of ways. Along these lines, an important distinction to make is whether social support should be considered subjectively or objectively. Social support can include social resources that individuals *perceive* to be available, or those that are actually *offered* to them by others (Cronkite & Moos, 1995). Regarding this distinction, most authors have found *perceived* social support to be a better predictor of mental health outcomes than objectively measured social support (Barrera, 1986; Sarason, Sarason, Potter, & Atoni, 1985; Schaefer, Coyne, & Lazarus, 1981; Wilcox, 1981).

Commonly defined as a person’s perceptions of availability of support from others (i.e., friends, family, and significant others), measures of perceived social support aim to capture the complexities of social support, including the nature and history of the interpersonal relationships involved, as well as the environmental context (Hobfoll & Vaux, 1993). This construct has often been found to buffer against or moderate the impact of stress on depressive symptoms (Cohen & Hoberman, 1983; Dean & Ensel, 1983; Gottlieb, 1985; Zimet et al., 1988). Additionally, a multitude of research has demonstrated that the adequacy of social support is directly related to reported severity of psychological symptoms (i.e., a main effect; Andrews, Tennant, Hewson, & Vaillant, 1978; Barrera, 1986; Procidano & Heller, 1983; Sarason et al., 1985; Schaefer et al., 1981). Dean and Ensel (1983) went so far as to say that social support is the single most

important factor in determining the levels of depression experienced by both males and females who range in age from 17 to 24. Thus, the role of perceived social support may be to buffer against the effects of low self-esteem, preventing subsequent negative psychological outcomes, or it may be a main effect insofar as it has a direct effect on adjustment.

It may also be the case that perceived social support mediates the relationship between self-esteem and depressive symptoms. Related to this, studies have shown that self-esteem may play a role in predicting perceived social support (Brissette et al., 2002; Friedlander et al., 2007). In terms of self-report, individuals with high self-esteem rate themselves as intelligent (Gabriel, Critelli, & Ee, 1994), attractive (Diener, Wolsic, & Fujita, 1995), socially skilled (Riggio, Throckmorton, & DePaola, 1990), and they expect others to like and include them in social activities (Walster, 1965). In contrast, individuals with low self-esteem often have distorted, negative perceptions of themselves, others, and their relationships. They also tend to display maladaptive protective mechanisms that result in negative outcomes, which is discussed in more detail below (Dandeneau and Baldwin, 2004; Wood, Giordano-Beech, Taylor, Michela, & Gaus, 1994). Accordingly, there exist several interpersonal theories positing that self-esteem may have an impact on perceived social support, which, in turn, impacts depressive symptoms.

Swann's *self-verification theory* is based on the proposition that people need and strive for coherence and consistency within their daily lives, as evidenced by the common habit of making generalizations and having engrained schemas (Swann, Rentfrow, &

Guinn, 2003). Self-views follow these same guidelines, and individuals may employ various strategies to confirm their self-schemas, rather than modify these core self-conceptions to adapt to the environment and external cues. These strategies may include directing time and attention to others who are likely to confirm their self-views, or they may verbally or behaviorally elicit reactions that confirm their self-conceptions (Swann & Read, 1981). Related to the current study, this model posits that individuals with low self-esteem may seek social feedback consistent with their own negative self-views. In other words, those with low self-esteem are more likely to *perceive* less social support than individuals with higher self-esteem (Swann & Read, 1981; Swann et al., 2003; Swann et al., 1992).

People with low self-esteem have also been shown to be more sensitive to rejection, and may perceive their relationship partner's behavior more negatively, thereby undermining attachment and satisfaction in close relationships (Murray et al., 2000; Murray et al., 2002). Additionally, low self-esteem may also motivate social avoidance, thereby impeding social support, perceived or otherwise (Ottenbreit & Dobson, 2004). Yet another theory, Coyne's (1976) *excessive reassurance-seeking* model, suggests that some individuals with low self-esteem consistently seek reassurance about their personal worth from others, which then increases the risk of being rejected by their social support network (Joiner, 2000; Joiner et al., 1999; Potthoff, Holahan, & Joiner, 1995). Thus, individuals with low self-esteem may tend to employ maladaptive cognitive and behavioral strategies that affect their subsequent perceived social support, thereby increasing depressive symptomatology (see Figure 1).

Coping Strategy as Moderator vs. Mediator

Because of dramatic changes in family support and social groups during the transition to college, in addition to the other stressors inherent to this transition, greater demands are placed on students' coping strategies (Hays & Oxley, 1986; Henton, Lamke, Murphy, & Haynes, 1980). A considerable amount of research in contemporary psychology has focused on the moderating effect of coping strategies on the relationship between stressful life events and mental health outcomes (Aldwin & Revenson, 1987; Blalock & Joiner, 2000; Clarke, 2006; Penley, Tomaka, & Wiebe, 2002). Within this literature, several models have been proposed to clarify the various dimensions of coping. A particularly important distinction is between engagement/approach coping, which manages the stressor or related emotions, and disengagement/avoidance coping, which aims to escape the stressor or related emotions (Carver & Connor-Smith, 2010; Cronkite & Moos, 1995; Moos & Schaefer, 1993; Skinner et al., 2003).

Engagement coping includes problem-solving strategies that deal directly with the stressor, as well as some forms of emotion-focused coping that seek to actively address the related distress. Some examples of these are active support-seeking, cognitive restructuring, emotion-regulation, and acceptance. Disengagement coping, on the other end of the spectrum, includes strategies such as denial, avoidance, and fantasy. This method of coping is often emotion-focused in that it involves efforts to escape emotional distress; however, this should be distinguished from emotion-focused *engagement* coping strategies, which directly address the negative emotions (Carver, Scheier, & Weintraub,

1989; Lazarus & Folkman, 1984). Emotion-focused *disengagement* coping strategies decrease distress levels by allowing individuals to disregard the stressor altogether.

Disengagement coping is generally ineffective in reducing stress over time, as it ignores the stressor's existence and its eventual consequences. In many situations, the longer an individual avoids dealing with the stressor, the more difficult the problem becomes to manage and the less time a person has to address the issue when one finally decides to confront it. Another potential outcome of disengagement coping is that avoidance and denial can promote a paradoxical increase in intrusive thoughts about the stressor and an increase in negative mood and anxiety (Najmi & Wegner, 2008). Moreover, some behavioral disengagement coping strategies, such as shopping and substance abuse, may directly result in negative health and/or financial outcomes (Carver & Connor-Smith, 2010). In this way, avoidance coping strategies may have beneficial effects in the short term in that there is a temporary decrease in stress, but may be associated with negative outcomes over the long-term (Nolen-Hoeksema & Morrow, 1993; Robbins & Tanck, 1992).

Research has shown that avoidant or disengagement coping strategies typically result in negative psychological outcomes (Blalock & Joiner, 2000). In particular, maladaptive efforts to cope with the stressors during the college transition may contribute to, or exacerbate, depressive symptomatology (Beasley et al., 2003; Steinhardt & Dolbier, 2008). This is supported by Seiffge-Krenke & Klessinger's (2000) longitudinal study, in which a significant relationship between disengagement coping strategies and depressive symptomatology was found to be stable across time. That is, adolescents employing any

type of avoidant coping were more likely to report depressive symptoms at the end of a four-year period, regardless of whether the disengagement strategies were consistently used, or whether they emerged later. Holahan and colleagues (2005) found disengagement coping to predict higher levels of both chronic and acute life stressors, which then led to subsequent increases in depressive symptoms. Thus, as it serves to maintain and/or intensify levels of stress, disengagement coping may also be associated with the maintenance and/or exacerbation of depressive symptoms over time.

Following this line of research, coping strategies may moderate the relationship between self-esteem and depressive symptomatology, in that those with low self-esteem will be more likely to display depressive symptomatology if they also endorse higher levels of disengagement coping. On the contrary, lower levels of disengagement coping may buffer individuals against the negative effects of low self-esteem.

Self-esteem has also been found to predict coping strategies, in that people who believe that they have the ability to manage a stressor used more problem-focused coping than those who see the situation as beyond their control (Bednar, Wells, & Peterson, 1989; DeLongis, Folkman, & Lazarus, 1988). Although the literature on the relation between self-esteem and coping strategy is limited, existing research indicates that adolescents with higher self-esteem are more likely to use problem-solving strategies than adolescents with lower self-esteem (Chapman & Mullis, 1999; Holahan & Moos, 1987; Kammeyer-Mueller et al., 2009).

It may be that high self-esteem individuals are more likely to accept responsibility in changeable situations, whereas those with low self-esteem react more often with

behavioral self-blame, which leads to increased rumination, rather than addressing the stressor directly (Folkman et al., 1986). Chan (1977) found that individuals with higher levels of self-esteem often attempt to change stressful situations because they believe in their competence to do so. Additionally, it has been demonstrated that adolescents with higher levels of self-esteem rely more on coping strategies directed at solving the problem as a result of increased self-confidence, whereas those who select avoidance strategies demonstrate lower self-esteem and less self-confidence (Moos, 1990). In this way, low self-esteem may be associated with higher levels of disengagement coping, which is expected to be associated with negative psychological outcomes such as depressive symptomatology (see Figure 5).

Alternative Model: Self-Esteem as a Mediator

A competing theory to explain the relation between self-esteem and perceived social support was also tested in the current study. That is, it is expected that higher levels of perceived social support will be associated with subsequently higher levels of self-esteem, rather than the reverse (see Figure 7). Studies have shown that increased perceived social support may directly produce positive psychological states, including recognition of self-worth, increased feelings of belonging and security, and increased self-esteem (Cohen, Underwood, & Gottlieb, 2000; Kawachi & Berkman, 2001). Moreover, the goal of support groups as interventions for various populations, such as abused women (Trimpey, 1989) and cancer patients (Spiegel, Bloom, & Yalom, 1981) is often to enhance levels of self-esteem that subsequently affect psychological well-being (Rosenberg, 1984). It has been proposed that perceived social support helps to elicit

positive emotions by enhancing self-esteem and a sense of control over the environment, thus reducing the negative effects of stress and serving to protect against negative psychological outcomes (Pearlin, Lieberman, Menaghan, & Mullan, 1981). In this model, self-esteem mediates the relation between perceived social support and depressive symptoms (Krause, 1987; Symister & Friend, 2003; see Figure 7).

In order to test the directional, and perhaps causal, nature of the relationship between self-esteem and perceived social support, it is important to explore other theoretically- and empirically-supported models. The particular alternative model (Figure 5) that was analyzed in the present study was chosen because of its strong theoretical support in the current population. A particular challenge of the first year of college is the fluctuating levels and types of social support. This transition involves separation from family and high school friends, and the pressure to develop new friendship networks (Compas, Wagner, Slavin, & Vannatta, 1986; Larose & Boivin, 1998; Paul & Brier, 2001). This introduces various social stressors during year of college, which might subsequently affect self-esteem, thus predicting future levels of depressive symptoms. Thus, the alternative model hypothesized that for first-year college students, self-esteem may mediate the relation between perceived social support and depressive symptomatology. This alternative mediation pathway was not considered for disengagement coping, as there is little to no theoretical or empirical support for disengagement coping predicting levels of self-esteem.

Another model that was considered but not analyzed in the current study proposes that depressive symptoms themselves may lead to lowered self-esteem by deteriorating

psychological resources, even after remission of a depressive episode. That is, depressive episodes may leave scars in the individual's self-concept that chip away at self-esteem over time (Coyne, Gallo, Klinkman, & Calarco, 1998; Rohde, Lewinsohn, & Seeley, 1990; Zeiss & Lewinsohn, 1988). This theory is referred to as the *scar model* of depression (as opposed to the *vulnerability model* used in this study). This model was excluded, due to the particularly mixed empirical support. Moreover, the majority of studies finding evidence in support of the *scar model* have been conducted in populations with severe major depression and late-onset depression (Shahar & Davidson, 2003). The vulnerability model is likely a better theoretical fit for first-year college students, as they are presumed to be relatively high functioning, and the majority of individuals in this age group will likely not have experienced several depressive episodes. Thus, depressive symptomatology was used as the outcome measure for all models included in the present study.

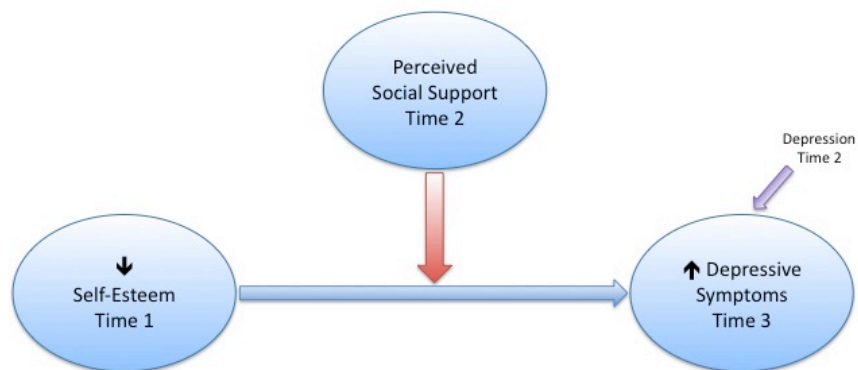
Research Overview: Model and Hypotheses

The purpose of the current study is to examine how self-esteem, perceived social support, and disengagement coping – three critical components of mental health outcomes in emerging adulthood and particularly in the first-year college experience – affect the development or exacerbation of depressive symptoms longitudinally over the first semester of college. This research also employed mediation and moderation analyses to test proposed interactions among self-esteem, perceived social support, and disengagement coping in predicting subsequent depressive affect. Specifically, this research will test the following hypotheses:

Hypothesis 1a: Lower levels of self-esteem at Time 1 will be associated with higher levels of depressive symptomatology at Time 3, controlling for depressive symptomatology at Time 2 (Figure 1).

Hypothesis 1b: Perceived social support at Time 2 (controlling for Time 1) will moderate (or buffer) the association between self-esteem at Time 1 and depressive symptoms at Time 3 (controlling for depressive symptomatology Time 2). Specifically, those who report lower levels of self-esteem but have higher levels of perceived social support will exhibit lower levels of depressive symptomatology than those with lower levels of self-esteem and low levels of perceived social support (see Figure 1).

Figure 1. Model for perceived social support moderating the relation between self-esteem and depressive symptomatology

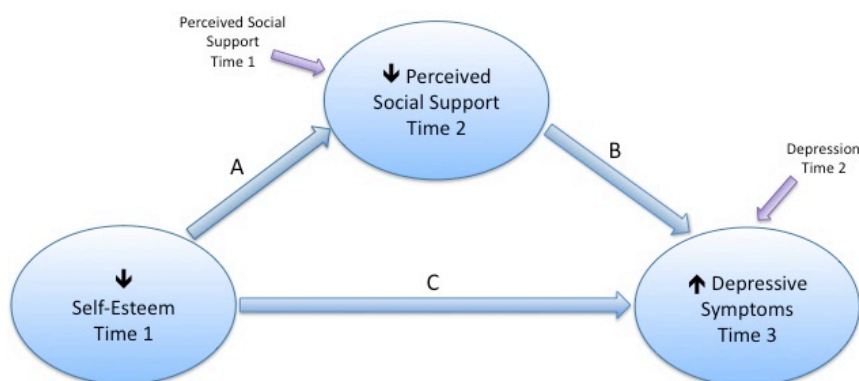


Hypothesis 2a: Lower levels of self-esteem at Time 1 will be associated with lower levels of perceived social support at Time 2, controlling for perceived social support at Time 1 (Figure 2, Pathway A).

Hypothesis 2b: Lower levels of perceived social support at Time 2 will be associated with higher levels of depressive symptomatology at Time 3, controlling for depressive symptomatology at Time 2 (Figure 2, Pathway B).

Hypothesis 2c: Perceived social support at Time 2 (controlling for Time 1) will mediate the relation between self-esteem at Time 1 and depressive symptomatology at Time 3 (controlling for Time 2). That is, in addition to hypotheses 1a, 2a, and 2b, including perceived social support in the model will significantly decrease the association between self-esteem and depression (see Figure 2).

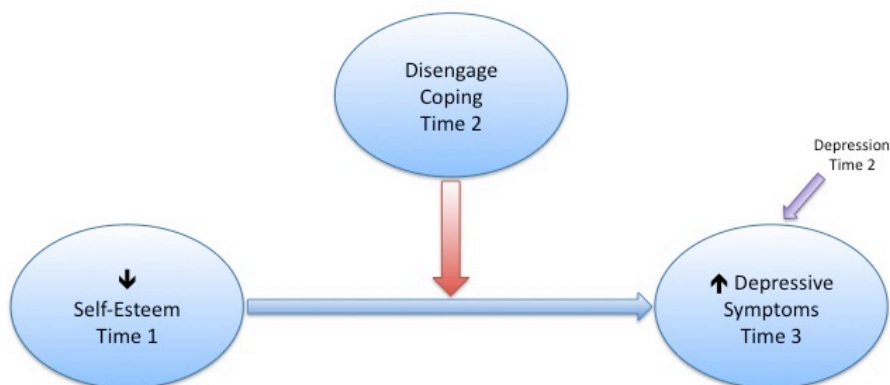
Figure 2. Model for perceived social support mediating the relation between self-esteem and depressive symptomatology



Hypothesis 3: Disengagement coping will moderate the association between self-esteem and depressive symptoms. Specifically, those who report lower levels of self-esteem but have lower levels of disengagement coping will exhibit lower levels of depressive

symptomatology than those with low levels of self-esteem and high levels of disengagement coping (see Figure 3).

Figure 3. Model of disengagement coping moderating the relation between self-esteem and depressive symptomatology

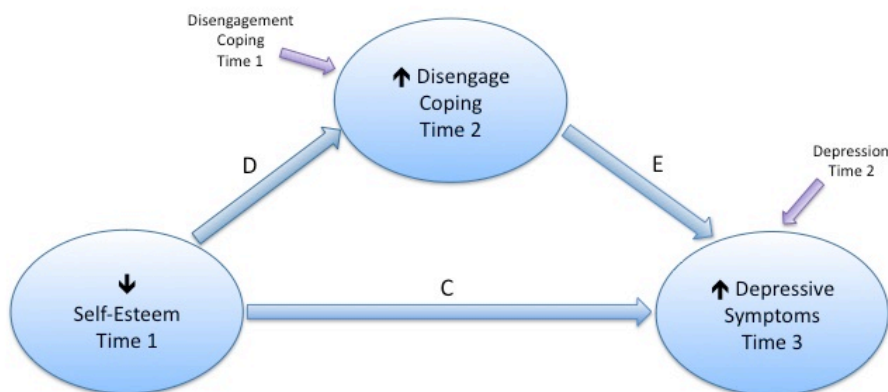


Hypothesis 4a: Lower levels of self-esteem at Time 1 will be associated with higher levels of disengagement coping at Time 2, controlling for disengagement coping at Time 1 (Figure 4, Pathway D).

Hypothesis 4b: Disengagement coping will predict depressive symptoms. Specifically, higher levels of disengagement coping at Time 2 will be associated with higher levels of depressive symptomatology at Time 3, controlling for depressive symptomatology at Time 2 (Figure 4, Pathway E).

Hypothesis 4c: Disengagement coping will mediate the association between self-esteem and depression. That is, in addition to hypotheses 1a, 4a, and 4b, including disengagement coping in the model will significantly decrease the association between self-esteem and depression (see Figure 4).

Figure 4. Model for disengagement coping mediating the relation between self-esteem and depressive symptomatology



Alternative Model

Hypothesis 5a: Lower levels of perceived social support at Time 1 will be associated with higher levels of depressive symptomatology at Time 3, controlling for Time 2 depressive symptoms (Figure 5, Pathway Z).

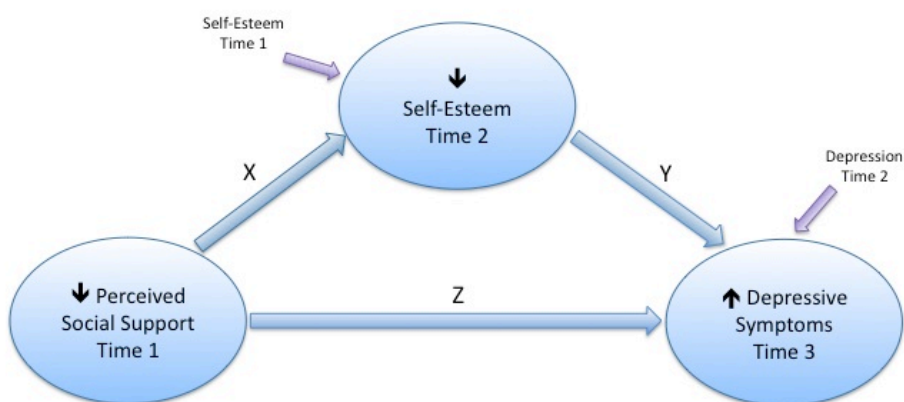
Hypothesis 5b: Lower levels of perceived social support at Time 1 will be associated with lower levels of self-esteem at Time 2, controlling for Time 1 self-esteem (Figure 5, Pathway X).

Hypothesis 5c: Lower levels of self-esteem at Time 2 will predict higher levels of depressive symptomatology at Time 3, controlling for Time 2 depressive symptoms (Figure 5, Pathway Y).

Hypothesis 5d: Self-esteem is expected to mediate the relationship between perceived social support and depressive symptomatology. That is, in addition to

hypotheses 5a, 5b, and 5c, including self-esteem in the model will significantly decrease the association between perceived social support and depression (Figure 5).

Figure 5. Alternative model: Self-esteem mediating the relation between perceived social support and depressive symptomatology



CHAPTER THREE

METHOD

Participants

This research project was part of a two-cohort, multi-wave longitudinal investigation of the adjustment to college, consisting of an online survey conducted at Loyola University Chicago. Four thousand and fifty-two first-year students were invited to participate over the course of two years (those entering the university in 2009 and 2010). Selecting students who had relevant data on measures of self-esteem, coping, perceived social support, and depression at all three data collection points yielded a subsample of 1,127 (M age = 18.50, SD = .49, range = 17.3 – 26.77, 71.6% female, 72.5% White, 12.0% Asian-American, 7.1% Hispanic or Latino, 2.1% African American, 6.3% other). Participants were offered entries into prize drawings and course credit for participation at each time point.

At Time 1, one week before the start of the fall semester (of 2009 and 2010), a total of 4,052 incoming first-year students were invited to complete the survey. Of the 4,052 potential participants invited to the survey, 2,803 (64%) completed the survey at Time 1. At Time 2, participants who completed Time 1 and were still enrolled at the university (n = 2,705) were invited to participate at the next round of the survey during the final two weeks of the fall semester. One thousand eight hundred and three (n = 1,803; 67%) completed the survey. At Time 3, during the final two weeks of the spring

semester, 2,690 participants who completed Time 1 and were still enrolled in the university, were invited to complete the final round of the survey. One thousand four hundred and sixty-six students completed the survey at Time 3 ($n = 1,466$; 54%)

The final sample included 1,118 participants (28% of invited participants at Time 1) who completed all 3 waves, including all relevant measures at each timepoint. Study participants did not differ from nonparticipants in age, $M = 18.51$, $t(4095) = 1.93$, $p = 0.053$. However, study participants, compared to nonparticipants, were more likely to be female, $\chi^2(1) = 35.16$, $p < 0.001$, White, $\chi^2(1) = 14.35$, $p < 0.001$, report higher high school GPA, $t(2057) = 8.30$, $p < 0.001$, and report higher ACT scores, $t(1911) = 8.80$, $p < 0.001$.

Procedure

This longitudinal study consisted of three data collection points. All data were collected online via Opinio survey software. One week prior to the start of the fall semester (Time 1), all incoming first-year students were emailed an online link to the survey. The survey was available for two weeks (i.e., until the end of the first week of classes). At the end of the fall semester (Time 2; approximately 15 weeks after Time 1), participants who completed the survey at Time 1 were emailed an online link to the survey. At the end of the spring semester (Time 3; approximately 35 weeks after Time 1), participants who previously completed the survey at Time 1, regardless of completion at Time 2, were once again emailed an online link to complete the survey. At each timepoint, the survey was available from ten to fourteen days. Participants completed a battery of measures, which included assessments of the following constructs relevant to

the present study: self-esteem, perceived social support, coping, and depressive symptomatology.

Measures

The larger set of measures used in the current study consists of various questionnaires evaluating psychosocial wellness among first-year student participants. These include instruments that assess mental health symptoms (e.g., depression, anxiety, and body image issues), skills and strengths (e.g., hope, resilience, and emotion regulation), and psychosocial functioning (e.g., self-esteem, social support, and self-efficacy).

Depressive symptoms. Participants reported the extent to which they experienced depressive symptoms on the 7-item depression subscale from the Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995; e.g., “I felt down-hearted and blue”). Response options ranged from 0 (*did not apply to me at all*) to 3 (*applied to me very much, or most of the time*); thus, higher scores reflect higher levels of depressive symptoms. This scale evidenced strong internal consistency at all three timepoints ($\alpha = 0.86-0.90$), consistent with previous research (Antony, Bieling, Cox, Enns, & Swinson, 1998; Henry & Crawford, 2005).

Self-Esteem. The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a 10-item, self-report measure of self-esteem. Participants indicated the extent to which they endorsed statements of self-worth (e.g., “On the whole, I am satisfied with myself” and “All in all, I am inclined to feel that I am a failure”) on a 4-point Likert scale from 0 (*strongly disagree*) to 3 (*strongly agree*). Higher scores on five of the items (items 1, 3, 4,

7, and 10) indicate higher levels of self-esteem, while higher scores on the other five items indicate lower levels of self-esteem. These latter five items will be reverse scored so that, in the overall analyses, higher scores will indicate higher levels of self-esteem. The Rosenberg Self-Esteem Scale is correlated with other self-report measures of self-esteem (Coopersmith, 1967; Hagborg, 1993), and previous studies have reported internal consistencies that range from 0.75-0.88 (McCarthy & Hoge, 1982; Rosenberg, 1979; Shahani, Dipboye, & Phillips, 1990). It has a test-retest reliability of $r = 0.82-0.88$ (over a two-week interval; Silber & Tippet, 1965). The internal consistency for the Rosenberg Self-Esteem Scale in the current sample ranged from 0.80-0.90.

Perceived Social Support. The Social Support Appraisals Scale (Vaux et al., 1986) is a 23-item, self-report measure of the extent to which participants believe that they are valued by, and involved with, family members, friends, and others. Participants indicated the extent to which they endorsed statements about their social support (e.g., “I am loved dearly by my family” and “My friends don’t care about my welfare”) on a 4-point Likert scale from 1 (*strongly disagree*) to 4 (*strongly agree*). Three scores can be computed, including a family score (sum of 8 items assessing family support), a friend score (sum of 7 items assessing friendship support) and a general others score (the remaining 8 items assessing perceived support from “others” more generally; O’Reilly, 1995). Higher scores on eighteen of the items (items 1, 2, 4-9, 11, 12, 14-20, and 23) indicate higher levels of perceived social support, while higher scores on the other five items indicate lower levels of perceived social support. These latter five items will be reverse scored so that, in the overall analyses, higher scores will indicate higher levels of

perceived social support. The Social Support Appraisals Scale is correlated with other measures of perceived social support (O'Reilly, 1995), and previous studies have reported internal consistencies that range from 0.83-0.89 (O'Reilly, 1995; Vaux et al., 1986). The internal consistency for the Social Support Appraisals Scale in the current sample ranged from 0.92-0.94.

Disengagement Coping. The Brief COPE (Carver, 1997) was used to assess a range of coping strategies. The Brief COPE is a 28-item scale, consisting of fourteen 2-item subscales. Participants indicated the extent to which they utilized each coping strategy on a 4-point Likert scale from 1 (*I usually don't do this at all*) to 4 (*I usually do this a lot*), with higher scores indicating greater utilization of the coping strategy. Based upon the previously summarized conceptual and empirical literature describing disengagement coping strategies, the current study focused on both cognitive and behavioral avoidance (Blalock & Joiner, 2000; Gutierrez, Peri, Torres, Caseras, & Valdes, 2007; Moos & Schaefer, 1993). Disengagement coping will be assessed by combining the following four subscales: the denial subscale (e.g., "I refuse to believe that it has happened"), the behavioral disengagement subscale (e.g., "I give up the attempt to cope"), the self-distraction subscale (e.g., "I do something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping"), and the substance use subscale (e.g., "I use alcohol or other drugs to make myself feel better"). The resulting subscales demonstrate adequate internal consistency for the current sample ($\alpha = 0.73 - 0.78$).

Demographics. At Time 1, participants provided information regarding their age, height, weight, and sexual orientation. Other demographic data, including ethnicity, citizenship, high school GPA, ACT scores, and high school class rank, were collected by the Office of Institutional Research at Loyola University Chicago with participant permission.

Data Analysis Plan

Baseline Analyses. Descriptive analyses, including means and standard deviations were calculated. Moreover, correlations were conducted to explore the associations between study variables. T-tests were run in order to determine baseline differences between study participants and nonparticipants (see Participants section above).

Moderation analyses. To test these models, analyses were based on Baron and Kenny's (1986) guidelines for using multiple regression to test moderation hypotheses. Procedures followed those outlined by Aiken and West (1991) for testing interactions using multiple regression. In each moderation analysis, self-esteem at Time 1 was the predictor and depressive symptomatology at Time 3 was the outcome variable. Moderators, in separate analyses, included: (1) perceived social support at Time 2, and (2) disengagement coping at Time 2. Interaction terms were created for each analysis: self-esteem X moderator. All continuous independent variables were centered prior to conducting the analyses. The dependent variable was depressive symptomatology at Time 3, controlling for depressive symptoms at Time 2. Subsequently, exploratory analyses were run, in order to examine the interaction of self-esteem and the moderators, all assessed at Time 2, predicting depressive symptoms at Time 3. Depressive symptoms

at Time 3 was always the outcome variable, to maintain consistency in all of the analyses. Moreover, the purpose of the study was to determine the effect of various factors on levels of depressive symptomatology at the end of the first year of college.

Depressive symptoms at Time 2 were entered in the first step of the model, followed by the independent variable and the moderator in the second step, and the interaction term in the third step. If the interaction term accounts for significant unique variance, a moderation hypothesis is supported. In the case of significant interactions, simple slopes analyses were conducted to determine the nature of the interactions, following the guidelines of Aiken and West (1991). For each significant interaction, two variables were calculated to represent participants' score for one standard deviation above and below the mean of the moderating variable. Then, the newly computed high and low moderating variables were separately entered into the regression equation, replacing the original moderating variables in a subsequent series of analyses.

Mediation Analyses. The regression approach to analyzing mediated effects, as outlined by Baron and Kenny (1986), will be used to test mediation models. In each mediation analysis of the main models (2 & 4), the independent variable was self-esteem. Mediators for these models, in separate analyses, included: (1) perceived social support and (2) disengagement coping. In the alternative model, self-esteem was analyzed as the mediator, with perceived social support as the independent variable. In all study models, depressive symptomatology was the outcome variable.

Four steps were used to test each model: (1) assess whether the independent variable at Time 1 predicts the outcome at Time 3, controlling for the outcome at Time 2;

(2) assess whether the independent variable at Time 1 predicts the mediator at Time 2, controlling for the mediator at Time 1; (3) assess whether the mediator at Time 2 predicts the outcome at Time 3, controlling for the outcome at Time 2; and (4) assess whether the relation between the independent variable at Time 1 and the outcome at Time 3 (controlling for the outcome at Time 2) is significantly reduced when controlling for levels of the mediator at Time 2. To test the significance of the indirect path (and thus test for mediation), we used the Sobel method described in Baron and Kenny (1986). The Sobel method provides a formula for calculating the standard error for the indirect path. To determine the significance of the indirect path, we computed a z-score by multiplying the unstandardized coefficients of the two indirect paths and dividing by the standard error of the indirect path.

An increasingly popular method of testing the indirect effect is bootstrapping (Bollen & Stine, 1990; Shrout & Bolger, 2002). This statistical technique allows for the normalization of a non-normal sample, while the more traditional Sobel test assumes a normal distribution of data, making it a much more conservative measure of mediation (MacKinnon, Warsi, & Dwyer, 1995). However, the Sobel test was chosen over bootstrapping for the analyses because the sample analyzed in the current study was large enough to address concerns of statistical power and normal distribution of indirect effects.

CHAPTER FOUR

RESULTS

Descriptive Analyses

Descriptive statistics for all study variables are presented in Table 1. Cronbach's α for all scales and subscales were found to be satisfactory (i.e., greater than the threshold of 0.70).

Table 1. Descriptive statistics for study variables.

	α	M	SD
DASS-21 Depression Subscale Time 2	.90	10.78	4.20
DASS-21 Depression Subscale Time 3	.88	10.78	4.08
Rosenberg Self-Esteem Scale Time 1	.88	27.00	5.05
Rosenberg Self-Esteem Scale Time 2	.80	28.58	5.33
Social Support Appraisals Scale Time 1	.92	75.04	9.54
Social Support Appraisals Scale Time 2	.94	72.78	10.30
Brief COPE Disengagement Time 1	.73	18.85	4.15
Brief COPE Disengagement Time 2	.77	19.33	4.55

Note. DASS-21 = Depression Anxiety Stress Scale - 21 item version

Correlational Analyses

Correlational analyses were conducted to assess the relations among all variables (see Table 2). As expected, self-esteem, perceived social support, disengagement coping, and depression were positively correlated with each other. Specifically, higher self-esteem was significantly and negatively related to higher depression scores. Similarly,

higher perceived social support was significantly and negatively related to higher depression scores. Disengagement coping was significantly and positively related to higher depression scores. The relation between self-esteem and perceived social support was significant and positive. The relation between self-esteem was and disengagement coping was significant and negative. Additionally, perceived social support was significantly and negatively related to disengagement coping.

Table 2. Correlations among study variables.

	Dep T2	Dep T3	SE T1	SE T2	PSS T1	PSS T2	Dis T1	Dis T2
Depression Time 2	--	.51**	-.44**	-.59**	-.34**	-.46**	.38**	.49**
Depression Time 3		--	-.41**	-.45**	-.36**	-.37**	.34**	.40**
Self-Esteem Time 1			--	.71**	.64**	.56**	-.50**	-.35**
Self-Esteem Time 2				--	.51**	.66**	-.39**	-.44**
Perceived Support Time 1					--	.67**	-.32**	-.25**
Perceived Support Time 2						--	-.31**	-.33**
Disengagement Time 1							--	.49**
Disengagement Time 2								--

Note: Dep = Depression. SE = Self-Esteem. PSS = Perceived Social Support. Dis = Disengagement Coping

* $p < .05$. ** $p < .01$.

Moderation Analysis: Self-Esteem X Perceived Social Support

The first set of analyses conducted to test the moderation model involving self-esteem, perceived social support, and depressive symptomatology was structured to be consistent with the mediation models in the study. That is, the model used the first timepoint (T1) measurement of self-esteem, the second timepoint (T2) measurement of perceived social support, and the third timepoint (T3) measurement of depressive symptomatology. As shown in Table 3, there was a significant main effect of T1 self-esteem on later T3 depressive symptoms, controlling for T2 depressive symptoms. This suggests that people with higher self-esteem had significantly lower levels of depressive symptomatology than individuals with lower self-esteem. Furthermore, there was a significant main effect of T1 perceived social support on T3 depressive symptoms. People who reported more perceived social support had lower levels of depressive symptomatology than those not reporting as much perceived social support. However, there was not a significant T1 self-esteem \times T2 perceived social support interaction predicting T3 depressive symptoms. That is, the association between self-esteem and depressive symptomatology was not affected by whether people have high vs. low perceived social support.

Table 3. Predicting depressive symptoms at time 3 from self-esteem at time 1 and perceived social support at time 2

	Time 1 Self-Esteem				
	<i>b</i>	β	R^2 <i>Change</i>	<i>t</i>	<i>P</i>
Time 2 Depressive Symptoms	.37	.38	.26	12.91	<.001
Self-Esteem	-.23	-.20	.05	-6.40	<.001
Perceived Social Support	-.13	-.10		-2.61	<.01
Self-Esteem X Perceived Social Support	.05	.02	.00	.80	.43

Exploratory analyses: The moderation analyses were re-run with the independent variable and moderator assessed at the same timepoint. That is, this model used self-esteem and perceived social support from the same timepoint (T2), and the third timepoint (T3) measurement of depressive symptomatology, controlling for depressive symptomatology from the second timepoint (T2). When using T2 self-esteem instead of T1 self-esteem, the analyses revealed there to be a significant main effect of T2 self-esteem on later T3 depressive symptoms, as well as a significant main effect of T2 perceived social support on T3 depressive symptoms. However, there was no significant T2 Self-Esteem x T2 Perceived Social Support interaction.

Table 4. Predicting depressive symptoms at time 3 from self-esteem at time 2 and perceived social support at time 2

	Time 2 Self-Esteem				
	<i>b</i>	β	R^2 <i>Change</i>	<i>t</i>	<i>p</i>
Time 2 Depressive Symptoms	.34	.35	.26	10.85	<.001
Self-Esteem	-.20	-.19	.04	-4.99	<.001
Perceived Social Support	-.12	-.09		-2.73	<.01
Self-Esteem X Perceived Social Support	.08	.04	.00	1.41	.16

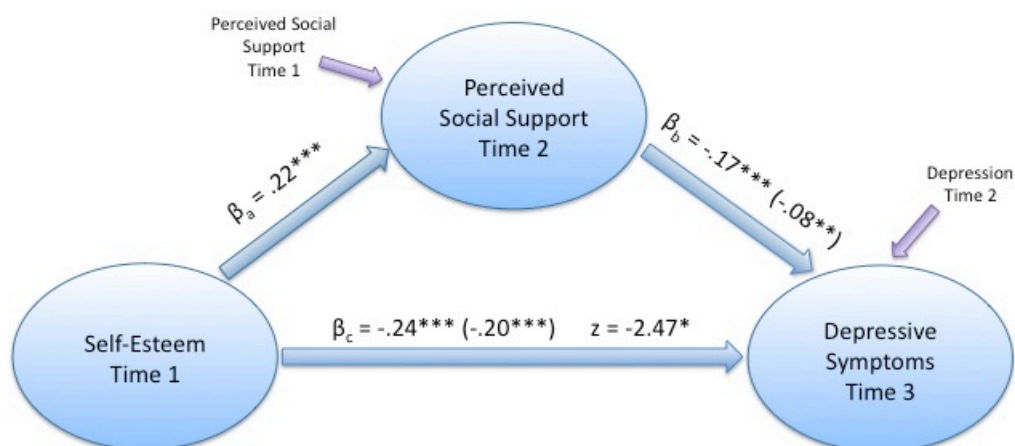
Perceived Social Support as Mediator

The first analysis examined whether self-esteem at Time 1 predicted depressive symptoms at Time 3, controlling for depressive symptoms at Time 2. As expected, and consistent with the analyses of previous models, the regression revealed that individuals with higher levels of self-esteem at Time 1 reported lower levels of depressive symptoms at Time 3, when compared to individuals with lower self-esteem at Time 1, $b = -.27$, $\beta = -.24$, $t(1123) = -8.48$, $p < .001$. Regarding effect size, self-esteem at Time 1 explained a significant proportion of variance in depressive symptomatology at Time 3, above and beyond depressive symptoms at Time 2, $R^2_{\text{change}} = .05$, $F_{\text{change}}(1, 1123) = 71.88$, $p < .001$. The subsequent analysis examined whether social support mediated the relation between self-esteem and depressive symptomatology. Figure 6 presents the analytic model testing this hypothesis. In this model, we assessed whether self-esteem at Time 1 predicted

perceived social support at Time 2, whether Time 2 perceived social support predicted depressive symptoms at Time 3, and finally, whether the relation between self-esteem and later depressive symptomatology was significantly reduced when we controlled for perceived social support.

Figure 6 also contains the standardized regression coefficients from our mediational analyses. As expected, people with higher self-esteem at Time 1 experienced more perceived social support at Time 2 (path **A** was significant). Self-esteem at Time 1 explained a significant portion of variance in perceived social support at Time 2, above and beyond perceived social support at Time 1, $R^2_{\text{change}} = .03$, $F_{\text{change}}(1, 1123) = 63.53$, $p < .001$. People also reported more depressive symptoms at Time 3 when they reported less perceived social support, after controlling for depressive symptoms at Time 2 (path **B** was significant). Perceived social support at Time 2 explained a significant portion of variance in depressive symptoms at Time 3, above and beyond depressive symptoms at Time 2, $R^2_{\text{change}} = .02$, $F_{\text{change}}(1, 1123) = 36.76$, $p < .001$. Finally, after taking perceived social support into account, the direct path between self-esteem at Time 1 and depressive symptoms (path **C'**) was significantly reduced. The combined indirect path (i.e., self-esteem to perceived social support and perceived social support to depressive symptomatology) was found to be significant, $z = -2.47$, $p = .01$.

Figure 6. Perceived social support mediating the relation between self-esteem and depressive symptoms



Note: β_a : The coefficient outside of the parentheses is that of the relation between perceived social support at Time 2 and depressive symptoms at Time 3, controlling for depressive symptoms at Time 2. The coefficient inside of the parentheses is the variance accounted for by perceived social support when also including self-esteem at Time 1. β_c : The coefficient outside of the parentheses is that of the relation between self-esteem at Time 1 and depressive symptoms at Time 3, controlling for depressive symptoms at Time 2. The coefficient inside of the parentheses is the variance accounted for by self-esteem when also including perceived social support at Time 2.

* = $p < 0.05$

** = $p < 0.01$

*** = $p < 0.001$

Moderation Analysis: Self-Esteem X Disengagement Coping

The first set of analyses conducted to test the moderation model involving self-esteem, perceived social support, and depressive symptomatology was structured to be consistent with the mediation models in the study. That is, the model used the first timepoint (T1) measurement of self-esteem, the second timepoint (T2) measurement of disengagement coping, and the third timepoint (T3) measurement of depressive symptomatology. As shown in Table 5, there was, again, a significant main effect of T1

self-esteem on later T3 depressive symptoms. Furthermore, there was a significant main effect of T2 disengagement coping on T3 depressive symptoms. That is, people who endorsed using more disengagement coping strategies at Time 2 had higher levels of depressive symptomatology at Time 3 than those endorsing less disengagement coping. However, there was not a significant T1 self-esteem \times T2 disengagement coping interaction predicting T3 depressive symptoms.

Table 5. Predicting depressive symptoms at time 3 from self-esteem at time 1 and disengagement coping at time 2

	Time 1 Self-Esteem				
	<i>b</i>	β	<i>R</i> ² <i>Change</i>	<i>t</i>	<i>p</i>
Time 2 Depressive Symptoms	.33	.34	.26	11.37	<.001
Self-Esteem	-.25	-.21	.06	-7.62	<.001
Disengagement Coping	-.16	-.12		3.43	.001
Self-Esteem X Disengagement Coping	.10	.06	.00	1.86	.06

Exploratory analyses: Similar to Model 1, another set of analyses conducted to test the moderation analysis included independent variable and moderator assessed at the same timepoint (T2). That is, this model used self-esteem and disengagement coping from the same timepoint (T2), and the third timepoint (T3) measurement of depressive symptomatology, controlling for depressive symptomatology from the second timepoint (T2). When using T2 self-esteem instead of T1 self-esteem, the analyses revealed there to

be a significant main effect of T2 self-esteem on later T3 depressive symptoms. There was also a significant main effect of T2 disengagement coping on T3 depressive symptoms, as well as a significant T2 Self-Esteem x T2 Disengagement Coping interaction. That is, the relationship between self-esteem and depressive symptomatology is affected by whether people have high vs. low disengagement coping.

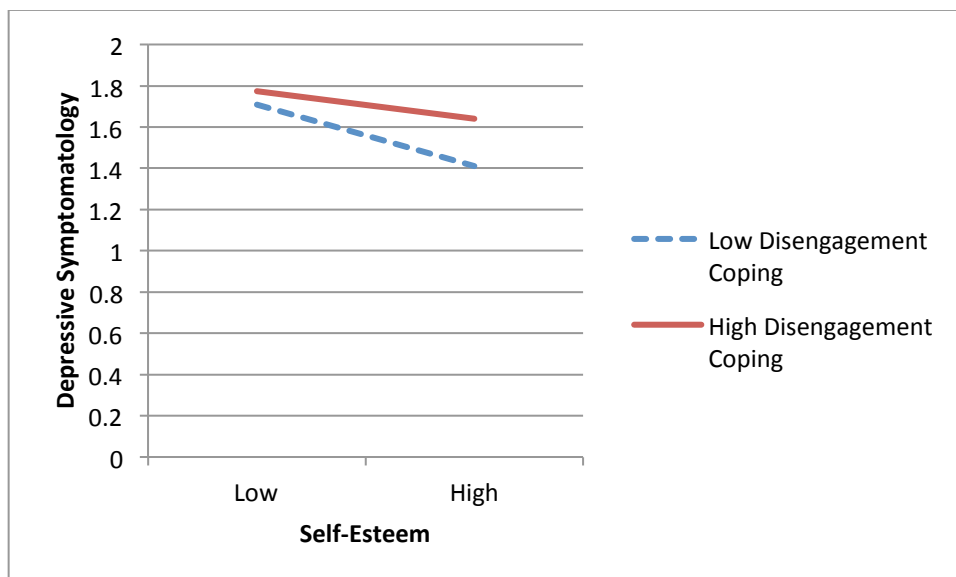
Table 6. Predicting depressive symptoms at time 3 from self-esteem at time 2 and disengagement coping at time 2

	Time 2 Self-Esteem				
	<i>b</i>	β	R^2 <i>Change</i>	<i>t</i>	<i>p</i>
Time 2 Depressive Symptoms	.33	.34	.26	10.09	<.001
Self-Esteem	-.20	-.18	.05	-5.83	<.001
Disengagement Coping	.18	.14		4.56	<.001
Self-Esteem X Disengagement Coping	.18	.08	.01	3.08	.002

Additionally, as suggested by the regression lines appearing in Figure 7, simple slopes tests revealed that for individuals who reported high levels of disengagement coping, self-esteem significantly predicted future depressive symptomatology, $b = -.12$, $\beta = -.12$, $t(1121) = -2.86$, $p = .004$. People high in disengagement coping with low self-esteem reported more depressive symptoms. There was also a significant association between self-esteem and depressive symptoms for those with low reported disengagement coping, $b = -.27$, $\beta = -.25$, $t(1121) = -6.87$, $p < .001$. For people low in

disengagement coping, depressive symptomatology was significantly higher with lower self-esteem. The association between self-esteem and depressive symptoms is slightly stronger in those with lower levels of disengagement coping, indicating that disengagement coping moderates the effects of high self-esteem and depressive symptomatology. Furthermore, the main effects of self-esteem and disengagement coping appear to have an additive effect on predicting future depressive symptoms. That is, individuals with low self-esteem who also endorse high levels of disengagement coping predict the highest levels of depressive symptomatology.

Figure 7. Interaction between T2 self-esteem and T2 disengagement coping on T3 depressive symptomatology



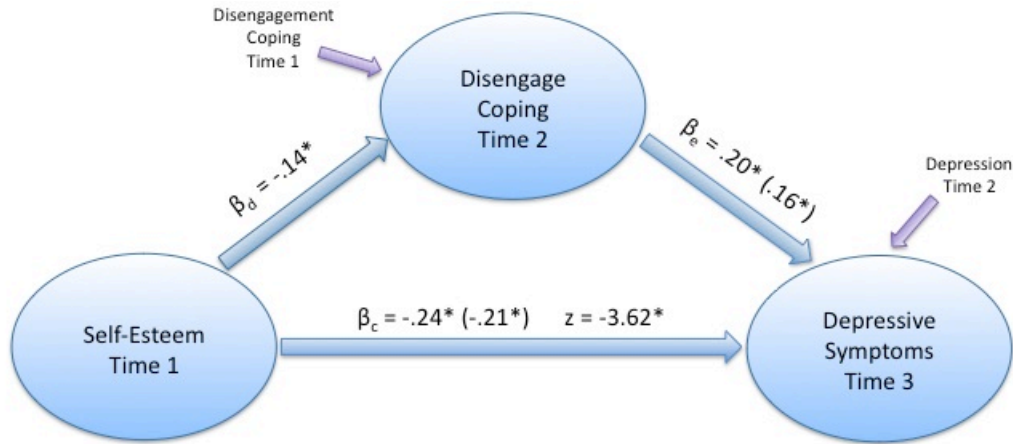
Disengagement Coping as Mediator

In this model, we assessed whether self-esteem at Time 1 predicted disengagement coping at Time 2, whether this disengagement predicted depressive

symptoms at Time 3, and finally, whether the relation between self-esteem and later depressive symptomatology was significantly reduced when we controlled for levels of disengagement coping. Figure 8 presents the statistical model testing this hypothesis, with unstandardized regression coefficients from the mediation analysis.

As expected, people with higher self-esteem at Time 1 endorsed less disengagement coping at Time 2 (path **A** was significant). Self-esteem at Time 1 explained a significant portion of variance in disengagement coping at Time 2, above and beyond disengagement coping at Time 1, $R^2_{\text{change}} = .02$, $F_{\text{change}}(1, 1123) = 22.64$, $p < .001$. People also reported more depressive symptoms when they reported more disengagement coping, after controlling for depressive symptoms at Time 2 (path **B** was significant). Disengagement coping at Time 2 explained a significant portion of variance in depressive symptoms at Time 3, above and beyond depressive symptoms at Time 2, $R^2_{\text{change}} = .03$, $F_{\text{change}}(1, 1123) = 46.66$, $p < .001$. Finally, after taking disengagement coping into account, the direct path between self-esteem at Time 1 and depressive symptoms (path **C'**) was significantly reduced. The Sobel Test revealed that the combined indirect path (self-esteem to disengagement coping and disengagement coping to depressive symptomatology) was significant, $z = -3.62$, $p < .001$.

Figure 8. Disengagement coping mediating the relation between self-esteem and depressive symptoms



Note: β_d : The coefficient outside of the parentheses is that of the relation between disengagement coping at Time 2 and depressive symptoms at Time 3, controlling for depressive symptoms at Time 2. The coefficient inside of the parentheses is the variance accounted for disengagement coping when also including self-esteem at Time 1. β_e : The coefficient outside of the parentheses is that of the relation between self-esteem at Time 1 and depressive symptoms at Time 3, controlling for depressive symptoms at Time 2. The coefficient inside of the parentheses is the variance accounted for by self-esteem when also including disengagement coping at Time 2.

* = $p < .001$

Alternative Mediation Analysis

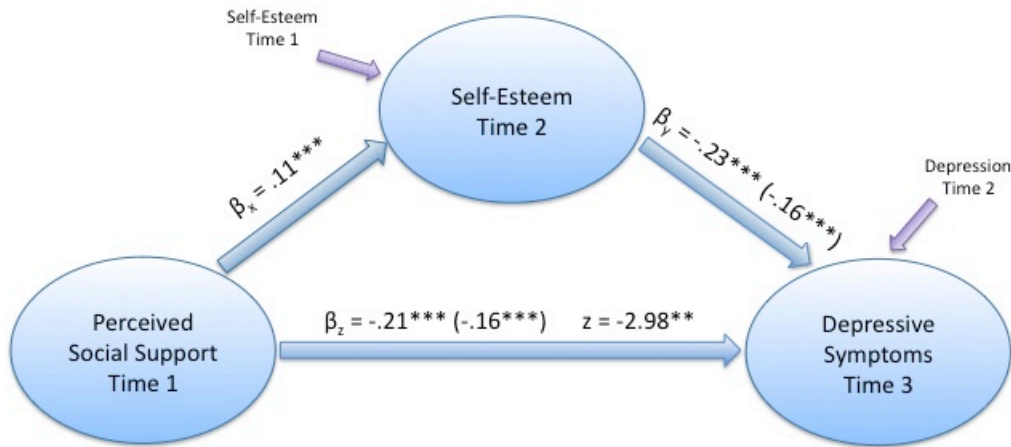
The first analysis examined whether perceived social support at Time 1 predicted depressive symptoms at Time 3, controlling for depressive symptoms at Time 2. The regression revealed that individuals with higher levels of perceived social support at Time 1 reported lower levels of depressive symptoms at Time 3, when compared to individuals with lower perceived social support at Time 1, $b = -.28$, $\beta = -.21$, $t(1123) = -7.90$, $p < .001$. Regarding effect size, perceived social support at Time 1 explained a significant portion of variance in depressive symptoms at Time 3, above and beyond depressive

symptoms at Time 2, $R^2_{\text{change}} = .04$, $F_{\text{change}}(1, 1123) = 62.28$, $p < .001$. Next, we examined whether self-esteem mediated the relation between perceived social support and depressive symptomatology. Figure 9 presents the analytic model testing this hypothesis. In this model, we assessed whether perceived social support at Time 1 predicted self-esteem at Time 2, whether this self-esteem predicted depressive symptoms at Time 3, and finally, whether the relation between perceived social support and later depressive symptomatology was significantly reduced when we controlled for self-esteem.

As expected, individuals with higher perceived social support at Time 1 reported higher levels of self-esteem at Time 2 (path **A** was significant). Perceived social support at Time 1 explained a significant portion of variance in self-esteem at Time 2, above and beyond self-esteem at Time 1, $R^2_{\text{change}} = .01$, $F_{\text{change}}(1, 1123) = 15.64$, $p < .001$.

Furthermore, students reported more depressive symptoms when they reported lower self-esteem, after controlling for perceived social support at Time 1 (path **B** was significant). Self-esteem at Time 2 explained a significant portion of variance in depressive symptoms at Time 3, above and beyond depressive symptoms at Time 2, $R^2_{\text{change}} = .03$, $F_{\text{change}}(1, 1123) = 54.13$, $p < .001$. Finally, after taking perceived social support into account, the direct path between self-esteem at Time 1 and depressive symptoms (path **C'**) was significantly reduced. The Sobel Test revealed that the combined indirect path (i.e., closeness to social support and social support to attachment security) was significant, $z = -2.98$, $p = .003$.

Figure 9. Self-esteem mediating the relation between perceived social support and depressive symptoms



Note: β_b : The coefficient outside of the parentheses is that of the relation between self-esteem at Time 2 and depressive symptoms at Time 3, controlling for depressive symptoms at Time 2. The coefficient inside of the parentheses is the variance accounted for by self-esteem, when also perceived social support at Time 1. β_c : The coefficient outside of the parentheses is that of the relation between perceived social support at Time 1 and depressive symptoms at Time 3, controlling for depressive symptoms at Time 2. The coefficient inside of the parentheses is the variance accounted for by perceived social support, when also including self-esteem at Time 2.

* = $p < .05$

** = $p < .01$

*** = $p < .001$

CHAPTER FIVE

DISCUSSION

This prospective study examined how self-esteem, perceived social support, and coping strategies are associated with the development of depressive symptoms in first-year college students. Participants completed an online assessment at three time points throughout their first year of college.

Contrary to hypotheses, perceived social support did not moderate the association between self-esteem and depressive symptoms. This was the case, regardless of whether the model was fully longitudinal (the interaction between Time 1 self-esteem and Time 2 perceived social support predicting Time 3 depressive symptoms), or the independent variable and moderator were assessed at the same timepoint. However, perceived social support was found to partially mediate the association between self-esteem and depressive symptoms. When considering a longitudinal moderation model with self-esteem at Time 1, disengagement coping at Time 2, and depressive symptomatology at Time 3, hypothesis 3 was not supported by the findings of the current study. However, when self-esteem and disengagement coping were analyzed at the same timepoint, predicting future depressive symptoms, disengagement coping was found to moderate the relationship between self-esteem and depressive symptomatology. Specifically, disengagement coping slightly increased the association between low self-esteem and

depressive symptomatology. Hypothesis 4c was supported by the findings of the current study. That is, disengagement coping was found to partially mediate the relation between self-esteem and depressive symptomatology. Lastly, consistent with the hypotheses of the alternative model, self-esteem was found to partially mediate the association between perceived social support and depressive symptoms. These findings suggest that perceived social support and disengagement coping play significant and transactional roles, interacting with self-esteem in various ways to predict depressive symptoms.

The Roles of Self-Esteem and Perceived Social Support in Predicting Depressive Symptoms

The present study found that perceived social support does not moderate the relation between self-esteem and perceived social support. However, the main effect of perceived social support on future depressive symptomatology suggests that perceived social support is protective against the exacerbation of depressive symptoms, which is consistent with the current research (Cohen & Hoberman, 1983; Dean & Ensel, 1983; Zimet et al., 1988). This indicates that though perceived social support may have a direct effect on adjustment to the first year of college by buffering against the stress of the college transition, it may not buffer against the effects of low self-esteem. This main effect is consistent with the literature, which has demonstrated that adequacy of, and satisfaction with, social support is directly related to reported severity of psychological symptoms (Andrews et al., 1978; Barrera, 1986; Procidano & Heller, 1983; Sarason et al., 1985; Schaefer et al., 1981).

Furthermore, as predicted, perceived social support was found to partially mediate the association between self-esteem and depressive symptoms. This suggests that self-esteem may work through perceived social support to affect later levels of depressive symptomatology. This is not surprising, considering the various ways in which self-esteem may affect an individual's perception of social support. Individuals with high self-esteem consider themselves likeable and successful in many domains, including interpersonal relationships (Riggio et al., 1990; Walster, 1965). They are thus more likely to report positive social interactions and adequate social support.

On the other end of the spectrum, individuals with low self-esteem often have distorted, negative perceptions of themselves, others, and their relationships. They may subsequently act on these negative beliefs, which would have a deleterious effect on relationship quality and negatively impact both perceived and actual social support. Individuals with low self-esteem may seek to confirm their negative self-views, focusing their attention on their friends' or partner's negative comments, retaining more detailed memories about negative interpersonal events, or even eliciting negative reactions from others (Swann & Read, 1981; Swann et al., 2003).

Relatedly, these individuals may also be more sensitive to rejection, perceiving more negative feedback from others (Murray et al., 2000; Murray et al., 2002). They may excessively seek reassurance about their personal worth from others, which would eventually become exasperating for peers, increasing the risk of being rejected by their social support network (Joiner, 2000; Joiner et al., 1999; Potthoff et al., 1995). All of these examples are ways in which individuals with low self-esteem may utilize

maladaptive cognitive and behavioral strategies, which may affect their subsequent perceived social support, thereby increasing depressive symptomatology. Together, these findings indicate that during the first year of college, self-esteem is a particularly important factor in the exacerbation of depressive symptoms, and may work through the adequacy of and satisfaction with social support networks.

The Roles of Self-Esteem and Disengagement Coping in Predicting Depressive Symptoms

The present study found that both self-esteem and disengagement coping directly impacted future levels of depressive symptomatology. That is, low self-esteem and high levels of disengagement coping independently predicted higher levels of depressive symptoms. Mixed findings emerged from the moderation analyses involving self-esteem, disengagement coping, and depressive symptoms. The fully longitudinal conceptualization of this model found no significant moderation by disengagement coping on the association between self-esteem and depressive symptoms. However, when self-esteem and disengagement coping were analyzed at the same timepoint, the results suggest that the relation between self-esteem and depressive symptomatology is stronger for individuals who endorse low levels of disengagement coping. Specifically, low levels of self-esteem predicted depressive symptomatology regardless of disengagement coping style, but high levels of self-esteem also predicted increased depressive symptoms in students with high levels of disengagement coping. That is, both individuals with high and low self-esteem reported higher future levels of depressive symptomatology if they reported high levels of disengagement coping. Furthermore, the main effects of perceived

social support and self-esteem on future depressive symptomatology appear additive. In other words, both low self-esteem and high disengagement coping predict an increase in depressive symptoms, and together, they have a stronger association with depressive symptomatology. Thus, it appears that disengagement coping is a strong risk factor for depressive symptomatology for all individuals, leaving those with low self-esteem particularly vulnerable.

These findings support previous findings indicating that disengagement is an extremely maladaptive strategy when coping with stress. Although the main effect of self-esteem on depressive symptomatology suggests that lower self-esteem is linked to higher levels of depressive symptoms, moderation analyses suggest that disengagement coping may weaken this association, predicting increased depressive symptoms even for individuals with high self-esteem. That is, individuals with high self-esteem are less likely to become depressed than those with low self-esteem, unless they endorse higher levels of disengagement coping.

As predicted, disengagement coping partially mediated the relation between self-esteem and depressive symptoms. It appears that individuals with low self-esteem are more likely to endorse higher levels of disengagement coping, which subsequently predicts increased levels of depressive symptomatology. This is consistent with past research, which has found individuals with low self-esteem endorse disengagement coping strategies more often than those with high self-esteem (Chapman & Mullis, 1999; Holahan & Moos, 1987; Kammeyer-Mueller et al., 2009). Inherent in low self-esteem is a feeling of incompetence or inefficiency. Those with low self-esteem often view

themselves as inferior to others in exacting change, and consequently, they view stressors to be beyond their control. As a result, these individuals may choose to avoid the situation, in order to mitigate the stress (in the short-term), while those who believe they can manage the stressor and change the situation may choose to tackle the problem head-on (Bednar et al., 1989; DeLongis et al., 1988; Moos, 1990).

Together, these findings indicate that during the first year of college, low self-esteem predicts higher levels of disengagement coping, which results in increased depressive symptomatology. Furthermore, high disengagement coping and low-self esteem have an additive effect, in that these two characteristics together most strongly predict depressive symptoms. High levels of disengagement coping predicts increased depressive symptoms even in individuals with high self-esteem. This is likely due to the fact that this form of coping does not address the stressor, but rather allows the problem to become larger and more intimidating with time. The development of this maladaptive coping strategy may be due to the initial relief of negative emotions as the individual avoids the stressor. The avoidance is thus reinforced through the initial alleviation of negative affect (Cloninger, 1987; Kim, Shimojo, & Doherty, 2006). However, without action, these stressors are likely to persist, and the chronic strain can lead to increased negative affect. Additionally, to successfully avoid a stressor, one must try not to think about it. However, research suggests that suppressing thoughts associated with stressors paradoxically leads to rumination, which predicts increases in depressive symptoms (Lucian, 2009; Watkins & Moulds, 2009).

Alternative Model: The Pathway from Perceived Social Support to Depressive Symptomatology through Self-Esteem

The final aim of this study was to analyze a potential alternative model, to determine the direction of interaction between self-esteem and perceived social support. Consistent with hypotheses, self-esteem was found to partially mediate the association between perceived social support and depressive symptomatology. Increased perceived social support was associated with higher subsequent levels of self-esteem, which predicted decreased levels of depressive symptoms. These findings may be explained by the fact that the transition to college is imbued with considerable social stress. Students must adapt to being more independent from parents and family, adjust to being away from the comfort of high school friends, and make new friends (Dyson & Renk, 2006; Edwards et al., 2001). There is increased pressure to find similar groups of peers, as well as increased risk of interpersonal conflict, with new and dynamic social groups. Furthermore, research has shown this period – emerging adulthood – to be a critical stage for identity development, wherein one's self-esteem is only just beginning to show continuity over time (Arnett, 2000).

In conjunction with the increased social stress and society's emphasis on the importance of social connections during this time period, it is logical that self-esteem might fluctuate in response to changes in perceived social support. Perceived social support may also produce positive psychological states, including confirmation of self-worth, increased feelings of belonging and security, and increased self-esteem (Cohen et al., 1983; Cohen et al., 2000; Kawachi & Berkman, 2001).

Implications

The findings from this prospective study have important implications within clinical psychology research, as well as practical applications in college environments and counseling/health wellness centers. Firstly, this study provides additional empirical support for the positive association between disengagement coping and depressive symptomatology. While self-esteem alone predicts future depressive symptoms, disengagement coping appears to increase the risk for developing depressive symptoms. While still in the early stages of understanding this association, these findings also suggest that disengagement coping may negate the buffering effect of high self-esteem against depressive symptoms.

A host of research on disengagement coping has found it to be associated with depressive symptoms over time, over various developmental periods (D’Zurilla, Chang, Nottingham, & Faccini, 1998; Holahan, Moos, Holahan, Brennan, & Schutte, 2005; Kuyken & Brewin, 1994). A longitudinal study by Holahan & Moos (1987) found that using more active coping strategies and relying less on disengagement coping strategies significantly reduced risk for negative mood and psychosomatic symptoms. In clinical research, disengagement coping has been associated with poorer post-treatment outcomes (i.e., non-remission after one year of treatment for depression; Krantz & Moos, 1988). Thus, disengagement coping is a clinically significant construct that has a notable impact on various populations.

This can inform therapeutic strategies employed by campus wellness centers, when caring for students with depressive symptoms. It may be valuable to integrate

techniques into therapy that address the avoidance of stressors. For example, Behavioral Activation, a technique of Behavioral Therapy, aims to work against passivity and the urge to disengage, and explores the individual's environment to find positive reinforcement (Kanter, Callaghan, Landes, Busch, & Brown, 2004). Problem-Solving Therapy seeks to train the individual to be a more proactive problem solver, and the therapist emphasizes the relationship between disengagement coping strategies and negative outcomes (Kanter et al., 2004). Even more simply, it may be beneficial to incorporate a psychoeducational piece into therapy with students, instructing them of the difference between different coping styles.

The findings of this study also suggest that self-esteem and perceived friendship support are associated in a bidirectional manner. It is likely that the various processes linking self-esteem to perceived social support operate simultaneously. This indicates that the support of friends and peers is one possible pathway through which self-esteem leads to depression in students transitioning into college, and suggests one mechanism through which prevention and intervention programs might promote positive mental health for these youth. Institutional program evaluations and research may benefit this population, exploring how current programs and structures affect social networks and the perceived social support of students at different times through the college experience. Colleges may choose to alter the social structure for students, to encourage a feeling of community, thereby increasing perceived social support. Furthermore, understanding the notable roles of perceived social support and self-esteem on future depressive symptoms may advise therapy. Behavioral Therapy techniques may also be effective for increasing social

interactions, particularly with individuals with low self-esteem (Kanter et al., 2004).

Incorporating techniques of Interpersonal Psychotherapy into the therapeutic repertoire may be effective to help students to adjust to role transitions and manage other social and interpersonal stressors (Klerman, Weissman, Rounsaville, Chevron, 1984). Both Behavioral Therapy and Interpersonal Psychotherapy are evidence-based psychotherapies for depression (APA, 2010; Sturmey, 2009).

The association between these constructs may be more complex, and there are likely other variables that have not been considered. For example, gender differences have been found in the effects of perceived social support on depression (Zimet et al., 1988). Thus, this is an important next step toward parsing out the various roles of risk and resilience factors in the exacerbation of depressive symptoms during the first year of college. More generally, and extending existing models of self-esteem and depression, the findings of this prospective study emphasize the importance of perceived social support as a mechanism through which self-esteem affects depressive symptoms, as well as the notable harm of disengagement coping strategies. It should be noted that the current study had a large sample size, which has the power to detect very small effects.

Limitations

Several limitations of the study should be noted. First, this study was based solely upon self-report measures, making it impossible to rule out common method variance interpretations for the findings. Future studies would benefit from the inclusion of multiple informants (e.g., friends, parents) and multiple measurement modalities (e.g., self-report, interview, behavioral) to assess coping, self-esteem, social support, and

depressive symptomatology. Additionally, coping was considered to be a stable, dispositional *trait* variable, while more recent literature has shown that coping is a more complex and dynamic construct, likely also having more flexible, situational *state* components (Schwarzer & Schwarzer, 1996). Thus, the measurement of coping strategies may be improved by incorporating multiple measurements of coping over time (Folkman & Lazarus, 1985). Although the Brief COPE has been empirically supported, the phrasing of the measure (i.e., “what you usually do when you are under a lot of stress”) clearly conceptualizes coping as more of a trait variable. It does not consider the nature of the stressor (e.g., family, interpersonal, academic) or the appraisal of the stressor (e.g., controllable/uncontrollable, chronic/acute). Individuals may approach different types of stressors with different strategies. Moreover, recent research suggests that self-report measures may not effectively measure situational coping, in that these measures may not predict variation in coping strategies used across different situations (Schwartz, Neale, Marco, Shiffman, & Stone, 1999). Additional measures of coping may provide supplementary information for both situational and dispositional coping strategies.

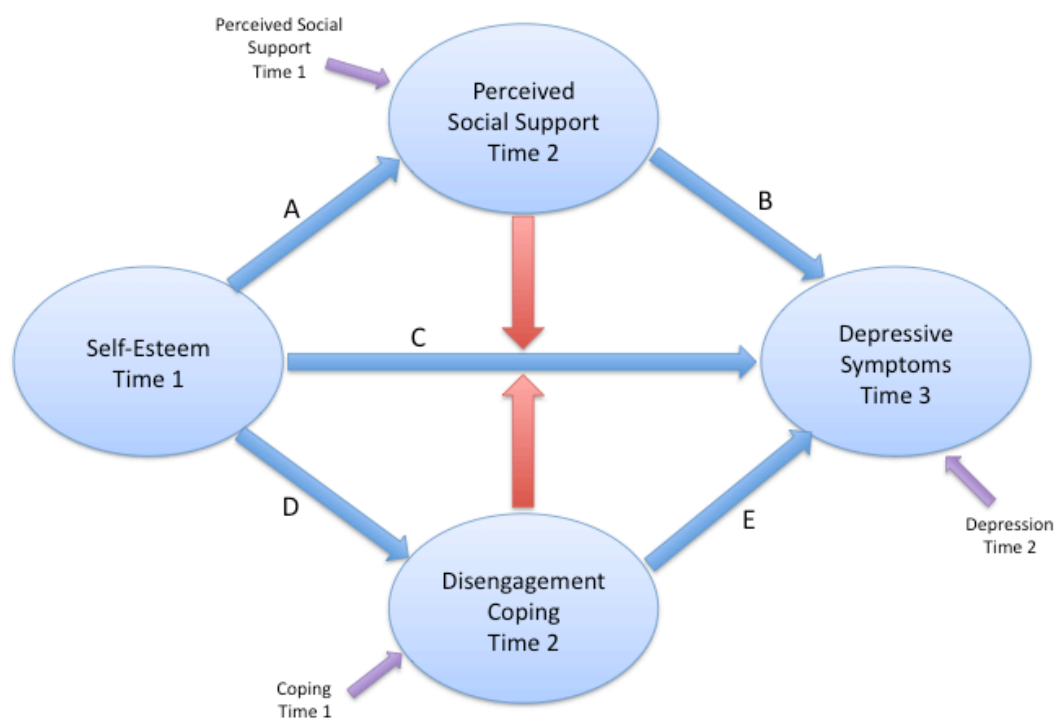
Furthermore, the overall sample of first-year college students reported relatively low levels of depression. This was illustrated by the relatively small range of depressive symptoms toward the low end of the spectrum in the current sample (Range from 1-4; $M = 1.57$; $SD = 0.59$). Future research would benefit from a sample of individuals with a more normally-distributed range of depressive symptoms.

Conclusions

Overall, findings from the present study suggest that self-esteem, perceived social support, and disengagement coping play significant roles in the escalation of depressive symptomatology during the first year of college. More specifically, self-esteem may work through both perceived social support and disengagement coping to affect depressive symptomatology. Disengagement coping also seems to be an underlying indicator of developing psychopathology during the first year of college for individuals with high self-esteem as well as those with low self-esteem. Furthermore, the association between self-esteem and perceived social support seems to be bidirectional, in that level of self-esteem may predict perceived social support, and vice versa.

APPENDIX A
CONCEPTUAL MODEL

A conceptual model of possible mechanisms from self-esteem to depression



APPENDIX B
QUESTIONNAIRE MEASURES

DASS21	Name:	Date:
<p>Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you <i>over the past week</i>. There are no right or wrong answers. Do not spend too much time on any statement.</p> <p><i>The rating scale is as follows:</i></p> <p>0 Did not apply to me at all</p> <p>1 Applied to me to some degree, or some of the time</p> <p>2 Applied to me to a considerable degree, or a good part of time</p> <p>3 Applied to me very much, or most of the time</p>		
1	I found it hard to wind down	0 1 2 3
2	I was aware of dryness of my mouth	0 1 2 3
3	I couldn't seem to experience any positive feeling at all	0 1 2 3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0 1 2 3
5	I found it difficult to work up the initiative to do things	0 1 2 3
6	I tended to over-react to situations	0 1 2 3
7	I experienced trembling (eg, in the hands)	0 1 2 3
8	I felt that I was using a lot of nervous energy	0 1 2 3
9	I was worried about situations in which I might panic and make a fool of myself	0 1 2 3
10	I felt that I had nothing to look forward to	0 1 2 3
11	I found myself getting agitated	0 1 2 3
12	I found it difficult to relax	0 1 2 3
13	I felt down-hearted and blue	0 1 2 3
14	I was intolerant of anything that kept me from getting on with what I was doing	0 1 2 3
15	I felt I was close to panic	0 1 2 3
16	I was unable to become enthusiastic about anything	0 1 2 3

17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Rosenberg Self-Esteem Scale

Please select the appropriate answer for each item, depending on whether you strong agree, agree, disagree, or strongly disagree with it.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Agree
- 4 = Strongly agree

	Strongly disagree	Disagree	Agree	Strongly agree
1. On the whole, I am satisfied with myself.	1	2	3	4
2. At times I think I am no good at all.	1	2	3	4
3. I feel that I have a number of good qualities	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I certainly feel useless at times.	1	2	3	4
7. I feel that I am a person of worth.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. All in all, I am inclined to think that I am a failure.	1	2	3	4
10. I take a positive attitude toward myself.	1	2	3	4

Social Support Appraisal Scale

Below is a list of statements about your relationship with family and friends. Please indicate how much you agree or disagree with each statement as being true.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Agree
- 4 = Strongly agree

	Strongly disagree	Disagree	Agree	Strongly agree
1. My friends respect me.	1	2	3	4
2. My family cares for me very much.	1	2	3	4
3. I am not important to others.	1	2	3	4
4. My family holds me in high esteem.	1	2	3	4
5. I am well liked.	1	2	3	4
6. I can rely on my friends	1	2	3	4
7. I am really admired by my family.	1	2	3	4
8. I am respected by other people.	1	2	3	4
9. I am loved dearly by my family.	1	2	3	4
10. My friends don't care about my welfare.	1	2	3	4
11. Members of my family rely on me.	1	2	3	4
12. I am held in high esteem.	1	2	3	4
13. I can't rely on my family for support.	1	2	3	4
14. People admire me.	1	2	3	4
15. I feel a strong bond with my friends.	1	2	3	4
16. My friends look out for me.	1	2	3	4
17. I feel valued by other people.	1	2	3	4
18. My family really respects me.	1	2	3	4
19. My friends and I are really important to each other.	1	2	3	4
20. I feel like I belong.	1	2	3	4
21. If I died tomorrow, very few people would miss me.	1	2	3	4
22. I don't feel close to members of my	1	2	3	4

family.				
23. My friends and I have done a lot for one another.	1	2	3	4

Brief COPE

We are interested in how people respond when they confront difficult or stressful events in their lives. There are lots of ways to try to deal with stress. This questionnaire asks you to indicate what you generally do and feel when you experience stressful events. Obviously, different events bring out somewhat different responses, but think about **what you usually do when you are under a lot of stress.**

Then respond to each of the following items by circling one number on your answer sheet for each, using the response choices listed just below. Please try to respond to each item separately in your mind from each other item. Choose your answers thoughtfully, and make your answers as true FOR YOU as you can. Please answer every item. There are no "right" or "wrong" answers, so choose the most accurate answer for YOU--not what you think "most people" would say or do. Indicate what YOU usually do when YOU experience a stressful event.

- 1 = I usually don't do this at all
- 2 = I usually do this a little bit
- 3 = I usually do this a medium amount
- 4 = I usually do this a lot

	I usually don't do this at all	I usually do this a little bit	I usually do this a medium amount	I usually do this a lot
1. I turn to work or other substitute activities to take my mind off things.	1	2	3	4
2. I concentrate my efforts on doing something about the situation I'm in.	1	2	3	4
3. I say to myself "this isn't real."	1	2	3	4
4. I use alcohol or other drugs to make myself feel better.	1	2	3	4
5. I try to get emotional support from friends or relatives.	1	2	3	4
6. I give up trying to deal with it.	1	2	3	4
7. I take action to try to make the situation better.	1	2	3	4
8. I refuse to believe that it has	1	2	3	4

happened.				
9. I say things to let my unpleasant feelings escape.	1	2	3	4
10. I try to get help and advice from other people.	1	2	3	4
11. I use alcohol or other drugs to help me get through it.	1	2	3	4
12. I try to see it in a different light, to make it seem more positive.	1	2	3	4
13. I criticize myself.	1	2	3	4
14. I try to come up with a strategy about what to do.	1	2	3	4
15. I get comfort and understanding from someone.	1	2	3	4
16. I give up the attempt to cope.	1	2	3	4
17. I look for something good in what is happening.	1	2	3	4
18. I make jokes about it.	1	2	3	4
19. I do something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1	2	3	4
20. I accept the reality of the fact that it has happened.	1	2	3	4
21. I express my negative feelings.	1	2	3	4
22. I try to find comfort in my religion or spiritual beliefs.	1	2	3	4
23. I try to get advice or help from someone about what to do.	1	2	3	4
24. I learn to live with it.	1	2	3	4
25. I think hard about what steps to take.	1	2	3	4
26. I blame myself for things that happened.	1	2	3	4

27. I pray or meditate more than usual.	1	2	3	4
28. I make fun of the situation.	1	2	3	4

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